

**International Harmonised Research Activities
Vehicle Compatibility Working Group**

Minutes of the Seventh Meeting, held at INSIA in Madrid on 1 February 2000
including
Note on Joint Meeting with IHRA Frontal Impact Group on 2-3 February 2000

Present: IHRA Compatibility		Others	
P O'Reilly	Chairman	C Lomonaco	IHRA Front Chairman (J)
A Hobbs	Secretary	E Gianotti	IHRA Front Secretary (J)
T Hollowell	USA	R Lowne	IHRA Front Europe (J)
E Faerber	Europe (P)	P Fay	IHRA Front European Industry (J)
C Adalian	Europe	H Ohmae	JARI (J)
K Seyer	Australia		
C Newland	Australia		
K Mizuno	Japan		
R Zobel	European Industry (P)		(P) - Part attendance only
K Oki	Japanese Industry		(J) - Joint meeting only

Apologies for Absence

Apologies were received from P Prasad and J Wicher. Miss C Adalian replaced D Cesari for the meeting.

Minutes of the Sixth Meeting, in Berlin

Pg 2 - Australia

Mr Seyer will supply each member with a CD covering the data referred to in Doc 30.

Action Seyer

Pg 3 - Approval of Minutes.....

The two actions for Mr Faerber are carried over to the next meeting.

Action Faerber

Pg 4 - Approval of Minutes.....

The documents relating to earlier analyses have been distributed directly to members.
They have been given document numbers 44 & 45.

Mr Oki advised the group that there is no data available on accidents involving minicars.

Dr Zobel will send an electronic copy of the report on the EUCAR Accident Seminar to the secretary for distribution with the minutes (Doc 46).

Action Zobel

Mr Seyer advised the group that he would send a copy of the final report from the Monash study to each member. This will now be Doc 33a. An update of the compatibility

presentation will also be supplied to the secretary, in electronic form, for distribution with the minutes (Doc 35a).

Action Seyer

Note on the Ad Hoc Meeting in San Diego

The chairman distributed copies of his report of the meeting, which had been given to the IHRA frontal group (Doc 47). This was amended as follows:

Pg 2 Japan: For fixed barrier *but will continue to study the mobile deformable barrier.*

EEVC: There is no formal EEVC position *but EEVC WG15 have developed no interest in the MDB test for compatibility.* The reference to Mr Faerber's personal view is deleted.

Status of Current Activities and Future Plans

USA

NHTSA will continue to develop the system model to help identify important characteristics influencing compatibility. It will probably be a year before they are ready to begin a full fleet simulation. They have also started to look at load cell equipped MDB testing. They are attempting to study passenger compartment over-crushing using FE modelling by making the passenger compartment rigid. The FE models will also be used to look at the effect of improving interaction by the addition of a "blocker beam" to SUVs, such as that fitted by Ford to the Excursion.

NHTSA are studying the appropriate characteristics of the MDB. For practical reasons, they would favour using the same MDB for both frontal and side impact testing. They are also trying to relate the characteristics in a crash test with their accident data. They have not been successful yet. Dr Hollowell distributed copies of a report on injury patterns in car to car and car to LTV accidents (Doc 48). He will supply a reference for the document at a future date.

Action Hollowell

The Toyota Rav4 has been added to the list of cars being modelled in FE. The model will be available to the EEVC for its future work.

EEVC

Mr Faerber said that he would ask for EC approval to send copies of the EC contract report to members of the IHRA group.

Action Faerber

The EEVC is planning a further project which will focus on the development of the potential test procedures, developed in the first phase. It will also include further accident analyses, FE modelling, crash testing and possibly further structural analyses.

Japan

Mr Oki said that a study was to be carried out looking at the effect of raising and lowering the deformable barrier face in the ODB test. A car to car test is planned with the cars

at different ride heights and at least two ODB tests will be performed. One will be with the barrier face completely above the longitudinal and one with it completely below it.

Mr Mizuno advised that one or two ODB tests were planned for the summer of 2000. These were aimed at preventing bottoming out and over-riding by increasing the depth and height of the barrier face.

Australia

Mr Seyer advised the group that Australia had started to carry out three car to car tests. These would be a small v large car, a small car v SUV and a large car v SUV. The SUV chosen will be unitary bodied. The impacts will be at 50 km/h and 50 percent overlap on the narrowest vehicle. They then expect to repeat the tests using an MDB. They plan to use an FMVSS 214 barrier face, with both vehicles moving but not crabbed.

European Industry

Dr Zobel explained that the EUCAR project will be completed at the end of 2000. The crash test workshop, which is being held jointly with EEVC, will be open to interested parties. The EUCAR test programme has been focussed on aspects seen in their accident study and will run into the summer. It is hoped that in discussion with EEVC, some conclusions can be reached and a decision made about the way forward. Dr Zobel pointed out that the information sent out about the workshop indicated that delegates would be at the airport by 17.30 for departing flights. This is incorrect, the time for departing lights can be after 19.00.

Forward Programme, Activities, Targets and Reporting

The US congress and public have a growing interest in compatibility. There is concern that the industry has increased the sales of LTVs to avoid fuel consumption requirements for cars. Japan and Australia also reported media interest in compatibility.

Review of the Programme Plan

The Gantt chart has been extended and will be circulated with the minutes (Doc 13d). With no delegates from Canada or the US Industry, there data could not be entered. They are asked to supply that data at the next meeting.

Action Canada and Prasad

Targets

The group agreed that it should aim to propose the best technical solution which achieved as much as feasible on compatibility without compromising other aspects of protection. Car to car and car to LTV accidents will aim to be covered. At the same time other types of accidents will be kept in mind to ensure that protection is not compromised: pedestrian, HGV and roadside obstacles.

Reporting

The chairman has to report to the steering group on 3 March 2000. However, the main reporting will be at ESV in 2001. It is expected that a Status Report will summarise the position with detailed technical documents being presented in a compatibility session. The final report will be compiled later but it would be appropriate to start to develop an outline of the report in the near future.

The final report might take the form of:

Report on Harmonisation Activity

- regulation
- test procedures
- test tools
- criteria
- extent of co-operative activity
- how harmonisation could be improved in future

Report on Compatibility

- accident analyses
 - national statistics
 - in depth data
- Fleet descriptions
- structural surveys
- exploratory research
 - crash testing
 - modelling
- findings from exploratory research
- aspects requiring further understanding
- test procedures for measuring / controlling compatibility
- criteria
- test tools / dummies etc
- potential savings and costs
- potential for phasing in requirements as knowledge grows

It would also be valuable to include a short summary which reported on the effectiveness of the IHRA approach to dealing with compatibility.

Potential Test Procedures

In discussion it was agreed that the priority was to preserve the integrity of the passenger compartment in frontal impact. As car stiffness increases, the importance of controlling the cars deceleration pulse and consequently, seat belt forces will increase. In order that the cars' energy absorbing structures perform as designed, it was agreed that it is important to improve structural interaction. The provision of a strong passenger compartment should ensure against compartment collapse and the deceleration pulse can be improved by considering the frontal stiffness time history.

Internet Web Site

Dr Hollowell will send members the Universal Resource Locator (URL) for the IHRA web site.

Action Hollowell

Each member is asked to check the past minutes for confidentiality concerns. Once checked, the minutes can be placed on the public page.

Action All

Questions from IHRA Frontal Group

The IHRA frontal group would like the views of the compatibility group on their interest in a high deceleration pulse test, the need to redesign the barrier face for ODB testing, the requirements for instrumented dummies and the need for a deformable face in a full width test.

Date and Place of Next Meeting

The next meeting will be held at TRL on 14-15 June 2000. It will be followed by a one day IHRA frontal group meeting and preceded by an IHRA side impact meeting. In addition an ad hoc meeting will be held on 30 March 2000, in Wolfsburg, following the EUCAR/EEVC workshop.

Joint IHRA Compatibility and Frontal Meeting

The purpose of the meeting was to have a joint technical discussion. This note covers the main points of the meeting.

NHTSA

Dr Hollowell presented work using an MDB equipped with a load cell array behind the FMVSS 214 barrier face, used in their testing. The array is 11 cells wide by 4 cell high. each load cell is 5.75" x 5.25" (146mm x 133mm). A paper on this work will be presented to the SAE Congress. Dr Hollowell will send an electronic copy of the paper to the secretary for distribution.

They have a programme of tests MDB to car tests planned, for February/March 2000. These will be 60 percent overlap, co-linear, at a closing speed of 112 km/h, using the FMVSS 214 barrier face. The cars to be tested will be the Honda Accord, Toyota Rav4, Ford Explorer and a small car.

EEVC

Mr Faerber gave an overview of the EU part funded project, which was now complete. He explained that the EEVC was putting together another bid for further funding. Mis Adalian described the accident study, carried out as part of the EU project, and the crash test work performed by INRETS. Mr Hobbs described the UK crash test work and gave details of the potential test procedures which were being worked on. He also illustrated the problems of structural interaction with examples. using FE analysis work, he showed how the deformable face attenuated the very high early accelerations on the frontal structure, in a full width impact.

Japan

Mr Oki presented the plans for the future test programme in Japan (This was detailed earlier in the minutes of the IHRA Compatibility meeting).

Australia

Mr Newland detailed the structural survey work carried out in Australia. He will supply an electronic version of the document to the secretary, for distribution with the minutes. Mr Seyer commented that the Mazda MPV appeared to be very well tied together. Early analysis of their crash test programme indicated that The Rover Freelander loaded the upper load path on the Toyota Starlet, largely over-riding the lower load path. In the impact between the Ford Falcon and Freelander, the Freelander's lower load path was loaded to a greater extent.

IHRA Advanced Offset Frontal Impact Group

Mr Lomonaco described the activities of the IHRA frontal group. He will supply a revised version of his presentation, in electronic form, for circulation. Mr Lowne distributed copies of an IHRA frontal group document (AFC-28) which listed the potential for harmonising using common test conditions in current test procedures.

There followed a discussion about the possibility of proposing the adoption of a full width frontal impact test for Europe, as an initial stage towards harmonisation. This test could satisfy an initial frontal impact requirement and later might be developed for compatibility. Such a test might utilise a thin deformable face.

C A Hobbs
1 March 2000